

AMENDMENTS TO THE DRAWINGS:

The attached 2 sheets of drawings replace the previously filed sheet of drawings to replace the informal Figures 1-7 with formal Figures 1-7. The figures have been redrawn so as to address the outstanding drawing objections.

REMARKS

Claims 17-38 remain in this application. Claims 1-16 have previously been canceled. Claims 35-36 are now cancelled. Claims 37-38 are new and are based on claims 1 and 21. No new matter is entered by way of these amendments.

Allowable Subject Matter

Claims 18-19, 24 and 32-33 were indicated to be directed to allowable subject matter.

Amendments

The attached 2 sheets of drawings replace the previously filed sheet of drawings to replace the informal Figures 1-7 with formal Figures 1-7. The figures have been redrawn so as to address the outstanding drawing objections. Claims 28-29 have been amended. No new matter is entered by these amendments. Withdrawal of the drawing objections is solicited.

Responding to the specification objections, a substitute specification and a marked-up copy are attached. No new matter is entered by way of this amendment.

Rejections Under 35 USC 112

Claims 25 and 34-36 were rejected under section 112, first paragraph, as failing to comply with the enablement requirement. The claims are said to contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

More specifically, in claims 25 and 34-36, the rejection states that the specification does not disclose the edge region providing the biasing force and in the same instant having a biasing ring provided centrally between the end regions of the bearing surfaces. The Official Action states that it would have been impossible for the zone in the end region to protrude above the surface while at the same time having a biasing ring provided centrally between the bearing surfaces.

Claims 25 and 34-36 each recite that the biasing means is a biasing ring (40) provided substantially centrally between end regions of a bearing surface. The specification discloses: "In an alternative configuration, shown in FIG. 9, a solid section biasing ring 40 of compressible material is provided in an annular groove 41 formed centrally in the bearing surface of the outer bearing ring 42." As illustrated, the biasing ring (40) is provided substantially centrally between end regions of the bearing surface.

Thus, the feature recited by claims 25 and 34-36 is clearly supported and enabled.

Withdrawal of this rejection is solicited.

Claims 17-36 were rejected under 35 USC 112, second paragraph, as being indefinite.

The "confronting surfaces" recitation has been revised to -confronting bearing surfaces--, e.g., provided by the two bearing rings.

The claims have been amended to remedy the stated basis of rejection. Withdrawal of this rejection is solicited.

Rejections Under 35 USC 102, 103

Claims 17, 20-23, 26-27 and 31 were rejected as anticipated by KOTZALAS 2003/0210843.

Claims 28 and 29 were rejected as obvious over KOTZALAS.

In view of the above amendments, the claims are believed to be clearly non-obvious.

As to KOTZALAS, the Official Action states that KOTZALAS discloses that the inner raceway is deformed to provide a biasing force at the ends thereof, and that there is disclosed biasing ends that protrude above or away from the confronting surface of the inner or outer race. The Official Action has not, however, identified any corresponding structure.

Indeed, applicant can find no biasing means which provides a biasing force acting in a direction between said confronting bearing surfaces, said biasing force provided by deformability of at least one of the confronting bearing surfaces. There is no biasing means within the confronting bearing surfaces. There is no biasing means on bearing surfaces that provide a biasing force acting in a direction between the confronting bearing surfaces. There is no disclosure of a biasing force to keep the rollers on their track, with a structure as required by claim 17.

Applicant has carefully studied KOTZALAS and can find no disclosure which satisfies the further recitation of:

"an edge region of a local bearing surface of at least one of said confronting bearing surfaces or a local bearing surface of said at least one bearing roller, when in an unstressed condition, comprises a zone (15,23) which protrudes above an adjacent surface region to said local bearing surface, which edge region, in the assembled bearing, exerts the aforementioned biasing force, in such a way that under all load conditions for which the bearing is designed for use, each bearing roller is retained in contact with each of said confronting bearing surfaces".

KOTZALAS does disclose a preload mechanism, i.e., paragraph [0024] discloses a cylindrical roller bearing having a preload mechanism for preloading the internal components of the bearing—in either the inner race or the outer race. As per paragraph [0026], the inner race 1 has an inner raceway 5 and two ribs 6. Two undercuts 9 are positioned at the intersection of the two rib faces 8 and the ends of the inner raceway 5.

Reference is made to paragraph [0028] disclosing that preload mechanism is incorporated into the design of the outer race. The preload mechanism includes an annular groove 13, a ring segment 12, and a deformable raceway.

However, from paragraph [0034] one sees that "... due to the tightening of the plurality of fasteners 14, the outer

raceway 10 is changed from the arcuate shape into a cylindrical or slightly crowned shape, thus resulting in a preload on the internal components of the cylindrical roller bearing A."

Thus, in a loaded condition, the bearing surface has at least a cylindrical shape and more probably even a crowned shape, so that a preload is exerted on the rollers in the center and not at the edges.

The features of claim 17 are therefore not satisfied.

Further, applicant does not see that the features of claims 20-23 are present in KOTZALAS, and notes that the corresponding structure has not be identified.

Therefore, withdrawal of the pending rejections over KOTZALAS is solicited.

New Claims

New claims 37-38 are also both novel and non-obvious.

These claims require a biasing part providing a sufficient bias force acting, in an unloaded condition, to separate an adjacent portion of a corresponding confronting bearing surface from a corresponding portion of an adjacent roller surface of a bearing roller. The claims require this biasing part to be located at a specific location.

Such biasing part, at such location, is neither taught nor suggested by KOTZALAS.

KOTZALAS does not teach or suggest a biasing part located in an edge region of the inner/rings, where such biasing

part provides a deformability of the ring at said adjacent portion of said one confronting bearing surface (16,19) thereby resulting in the bias force acting in the direction between said confronting bearing surfaces (16,19) to separate the adjacent portion of the corresponding one said confronting bearing surface (16, 19) from the corresponding portion of the adjacent roller surface of the one said bearing roller.

KOTZALAS also does not teach of suggest a biasing part located in the roller bearing surface, the biasing part providing a deformability of said one bearing roller resulting in the bias force acting in the direction between said confronting bearing surfaces (16, 19) to separate the adjacent portion of the corresponding one said confronting bearing surface (16, 19) from the corresponding portion of the adjacent roller surface of the one said bearing roller.

KOTZALAS also does not teach of suggest such a biasing part that defines, in the unloaded condition, a protruding zone, where such protruding zone, in the unloaded condition, protrudes above an adjoining surface region such that the adjacent portion of the corresponding one said confronting bearing surface (16, 19) is free on contact with the corresponding portion of the adjacent roller surface of the one said bearing roller, and, in an assembled condition, said biasing part relocates such that the adjacent portion of the corresponding one said confronting bearing surface (16, 19) is in contact with the corresponding

portion of the adjacent roller surface of the one said bearing roller.

Also, as to claim 38, KOTZALAS also does not teach of suggest that the biasing part is at least one compressible ring (30, 40) located within a groove at said edge region of said one ring.

Thus, the new claims are also patentable and their allowance is solicited. Should there be any matters that need to be resolved in the present application; the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

This amendment is believed to be fully responsive and to put the case in condition for allowance. Entry of the amendment, and an early and favorable action on the merits is earnestly requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

The Appendix includes the following item(s):

- Replacement Sheets 1-2 of the drawings
- a Substitute Specification and a marked-up copy of the originally-filed specification